Tuning energy transfer in switchable donor-acceptor systems

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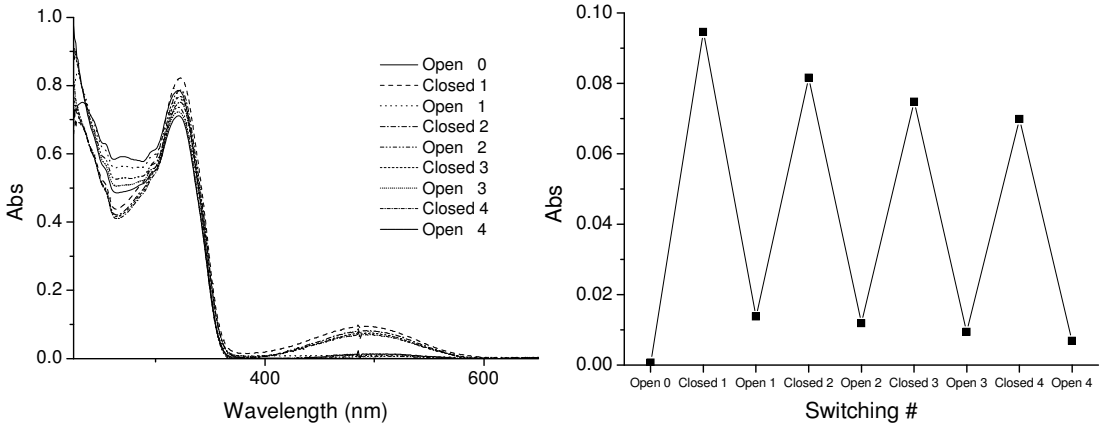
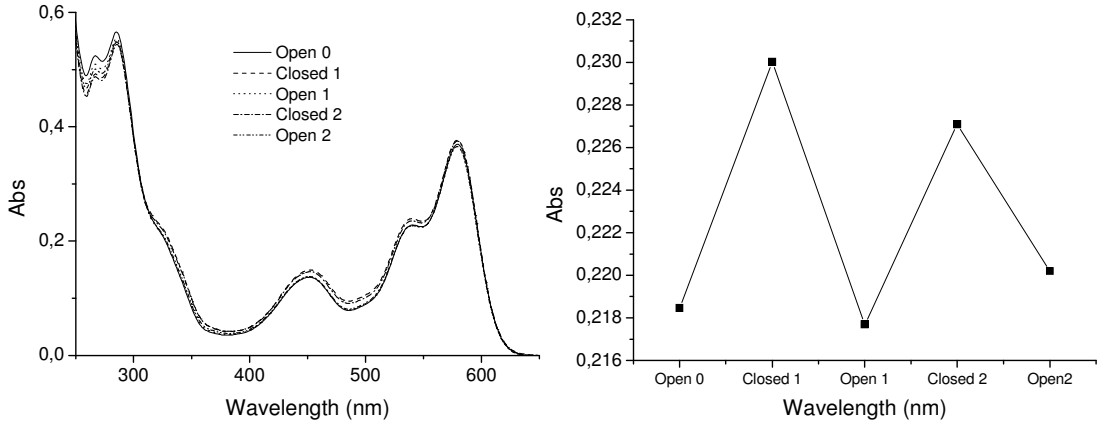
Photochromic switching of CSC 5 and PSC 10 over several cycles

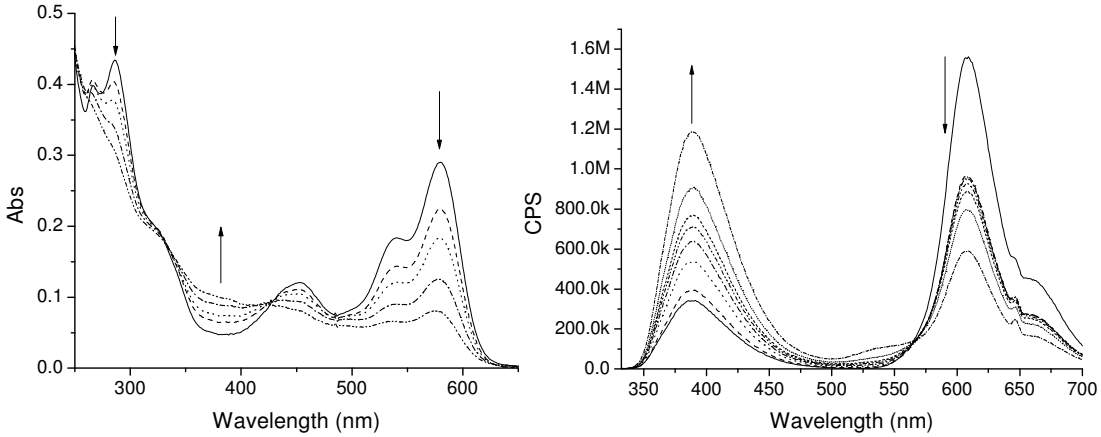


Left: Absorption spectrum of CSC **5** before and after photochemical ring closure ($\lambda_{exc} > 312$ nm) and opening ($\lambda_{exc} > 400$ nm). Irradiation was carried out at 220 K in CH_2Cl_2. Right: Absorption at $\lambda = 493$ nm plotted against number of times switched.



Left: Absorption spectra of PSC **10** before and after switching from PSC open to PSC PSS, irradiated with $\lambda = 312$ nm at 220K and $\lambda > 400$ nm light at RT in CH_2Cl_2 respectively. Right: Absorption at 493 nm plotted over three switching cycles of PSC using $\lambda = 312$ nm light at 220K to close and $\lambda > 400$ nm at RT to ring-open the dithienylcyclopentene unit. Measurements were performed in CH_2Cl_2 and spectra were recorded at RT.

Effect of irradiation of PSC 10 at λ = 254 nm



Left: The change in the absorption spectrum of PSC **10** upon irradiation over 20 min with λ = 254 nm light in CH_2Cl_2 at RT. Right: The change in emission spectra (λ_{ex} = 322 nm) of PSC **10** by irradiation over 18 min with λ = 254 nm light in CH_2Cl_2 at RT.